

# NAVY MEDICINE LIVE

THE OFFICIAL BLOG OF U.S. NAVY AND MARINE CORPS HEALTH CARE • 2011 & 2012 WINNER OF BEST NAVY BLOG

Home About Disclaimer Navy Medicine News Navy Medicine WebSite

Written on OCTOBER 24, 2013 AT 8:07 AM by VKREMER

## Navy Medicine Continues Work on Malaria Vaccine

Filed under HEATH PUBLIC HEALTH RESEARCH AND DEVELOPMENT (NO COMMENTS)

From Capt. Judith Epstein, malaria vaccine development program, [Naval Medical Research Center](#)



When it comes to the malaria parasite, how dangerous is a mosquito to deployed Sailors and Marines?

Malaria, caused by the protozoan Plasmodium which is carried by a mosquito, is responsible for more suffering and death across the world than any other parasite. More person-days were lost among U.S. military personnel due to malaria than to bullets during every military campaign fought in malaria-endemic regions during the 20th century.

Malaria continues to present a major challenge to force health protection during operations in any environment where malaria is endemic. This includes over 100 countries spanning the tropical and subtropical regions of the world including most of sub-Saharan Africa and larger regions of South Asia, Southeast Asia, Oceania, central Asia, the Middle East, Central and South America and the Caribbean.

In a malaria-naïve military population, an infection can severely degrade performance, result in missed duty, and may lead to prolonged hospitalization and, in some cases, death. The World Health Organization reported that in 2010 there were 216 million cases of malaria and 655,000 deaths due to malaria worldwide, with most deaths occurring in Africa. Unfortunately, it is young children and pregnant women who are most affected.

If one single malaria parasite enters an individual's blood stream after the bite of an infected mosquito and invades a liver cell, the parasite multiplies in five days to produce 30,000 to

### Navy Medicine Video

Navy Medicine is a global healthcare network of 63,000 Navy medical personnel around the world who provide high quality health care to more than one million eligible beneficiaries. Navy Medicine personnel deploy with Sailors and Marines worldwide, providing critical mission support aboard ship, in the air, under the sea and on the battlefield.

### Navy Medicine Social Media

[twitter](#) Follow us on Twitter

[facebook](#) Join us on Facebook

[issuu](#) Read our publications

[flickr](#) View our photo stream

[YouTube](#) Watch our videos

### Navy Medicine Live Archives

[February 2015 \(11\)](#)

[January 2015 \(12\)](#)

[December 2014 \(17\)](#)

[November 2014 \(11\)](#)

40,000 progeny parasites. These parasites are released into the blood when the liver cells rupture. In the blood, each parasite invades a red blood cell and grows over 48 hours to produce eight to 24 copies, which are released back into the blood when the red blood cells rupture. Over the course of one or two weeks, these replicating parasites lead to as many as one trillion circulating in the blood stream. People who get malaria are typically very sick with high fevers, shaking chills, and flu-like illness.

Although malaria can be a deadly disease, severe illness and death from malaria can be prevented if protective measures are taken. Malaria control interventions including insecticide-impregnated bednets, insecticide spraying, and antimalarial drugs are highly effective and have reduced malaria morbidity and mortality substantially. There are very effective drugs to treat individuals suffering from malaria, but the most cost-effective measure to fight this disease is to develop preventive malaria vaccines. Vaccines offer a *fire and forget* strategy providing much less burden to deployed military personnel than the current prevention methods. Right now there is no approved vaccine against malaria.

A highly effective vaccine to prevent malaria is a priority for Navy Medicine. The malaria vaccine research team at the Naval Medical Research Center, working with collaborators, has made progress on a vaccine to prevent malaria infection. We were involved in a human clinical trial of a novel malaria vaccine which was conducted at the Vaccine Research Center at NIAID (National Institutes of Allergy and Infectious Diseases) in Bethesda, Md. We played a key role in designing the study and evaluating the effectiveness of the vaccine. Three weeks after the volunteers were given the vaccine, they were exposed to the bites of five mosquitoes carrying infectious Plasmodium falciparum malaria. At the highest vaccine dose, six of nine volunteers receiving four doses and six of six receiving five doses of the vaccine were protected against malaria infection.

The results were recently published in the journal Science (Aug. 8, 2013) and may lead to a new direction in malaria vaccine development. The results are very promising and the team still has more research to do to move the vaccine along to get FDA approval. But who knows, there could be a malaria vaccine available to deploying warfighters in the next five years!!!

← Next post

Previous post →

vkremer tagged this post with: [malaria](#), [Naval Medical Research Center](#), [Navy](#), [Navy Medicine](#), [NMRC](#), [Public Health](#), [vaccine](#)

Read 221 articles by

vkremer

October 2014 (15)
September 2014 (20)
August 2014 (14)
July 2014 (13)
June 2014 (8)
May 2014 (11)
April 2014 (9)
March 2014 (14)
February 2014 (7)
January 2014 (7)
December 2013 (7)
November 2013 (12)
October 2013 (7)
September 2013 (14)
August 2013 (13)
July 2013 (11)
June 2013 (22)
May 2013 (15)
April 2013 (14)
March 2013 (14)
February 2013 (14)
January 2013 (12)
December 2012 (11)
November 2012 (11)
October 2012 (7)
September 2012 (9)
August 2012 (12)
July 2012 (13)
June 2012 (17)
May 2012 (22)
April 2012 (14)
March 2012 (13)
February 2012 (14)
January 2012 (13)
December 2011 (13)
November 2011 (20)
October 2011 (22)
September 2011 (12)
August 2011 (16)